# KVR13LR9S8K4/8I

8GB (2GB 256M x 72-Bit x 4 pcs.) PC3-10600
CL9 Registered w/Parity 240-Pin DIMM Kit

## DESCRIPTION

ValueRAM's KVR13LR9S8K4/8I is a kit of four 256M x 72-bit (2GB) DDR3L-1333 CL9 SDRAM (Synchronous DRAM), low voltage, registered w/parity, 1Rx8 ECC, Intel® Compatibility Tested, memory modules, based on nine 256M x 8-bit FBGA components per module. Total kit capacity is 8GB. The SPDs are programmed to JEDEC standard latency DDR3-1333 timing of 9-9-9 at 1.35V and 1.5V. Each 240-pin DIMM uses gold contact fingers. The electrical and mechanical specifications are as follows:

## FEATURES

- JEDEC standard 1.35V (1.28V ~ 1.45V) and 1.5V (1.425V ~ 1.575V) Power Supply
- VDDQ = 1.35V (1.28V ~ 1.45V) and 1.5V (1.425V ~ 1.575V)
- 667MHz fCK for 1333Mb/sec/pin
- 8 independent internal bank
- Programmable CAS Latency: 9, 8, 7, 6
- Programmable Additive Latency: 0, CL - 2, or CL - 1 clock
- Programmable CAS Write Latency(CWL) = 7 (DDR3-1333)
- 8-bit pre-fetch
- Burst Length: 8 (Interleave without any limit, sequential with starting address “000” only), 4 with tCCD = 4 which does not allow seamless read or write [either on the fly using A12 or MRS]
- Bi-directional Differential Data Strobe
- Internal(self) calibration : Internal self calibration through ZQ pin (RZQ : 240 ohm ± 1%)
- On Die Termination using ODT pin
- On-DIMM thermal sensor (Grade B)
- Average Refresh Period 7.8us at lower than TCASE 85°C, 3.9us at 85°C < TCASE ≤ 95°C
- Asynchronous Reset
- PCB : Height 1.180” (30.00mm), double sided component

## SPECIFICATIONS

| | |
|---|---|
| CL(IDD) | 9 cycles |
| Row Cycle Time (tRCmin) | 49.5ns (min.) |
| Refresh to Active/Refresh Command Time (tRFCmin) | 160ns (min.) |
| Row Active Time (tRASmin) | 36ns (min.) |
| Maximum Operating Power | (1.35V) = 3.036 W*<br>(1.50V) = 3.576 W* |
| UL Rating | 94 V - 0 |
| Operating Temperature | 0° C to 85° C |
| Storage Temperature | -55° C to +100° C |

*Power will vary depending on the SDRAM and Register/PLL used.

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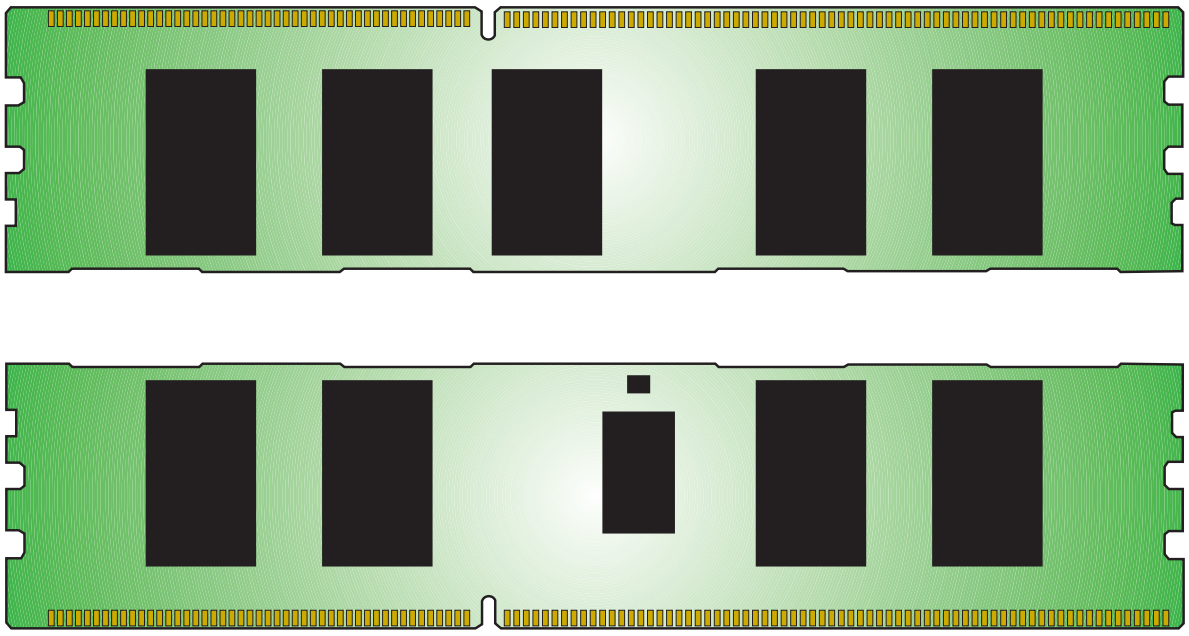
## MODULE DIMENSIONS:



(units = millimeters)